Fig. 47.1 • Examples of primary packaging, from top left, blister packaging, strip packaging, sachet, pouch for a suppository, glass bottle for solid powder for dispersion, glass bottle for liquid preparations, glass vial for parenteral preparations, glass ampoules, plastic bag for intravenous liquids, metal and plastic in pMDI, metal canister, plastic eye drop bottle, pre-filled syringe for injections and metal ointment tube.

The pharmaceutical pack

A pharmaceutical pack contains, protects and delivers a safe, efficacious drug product. At the same time it provides identification and information, enabling patient compliance and convenience. The primary pack, which is in direct contact with the product during storage and delivery (e.g. a glass bottle and cap), contains the product, while the secondary pack (e.g. a carton box for a glass bottle) contains the primary pack, as well as ancillary components, such as dispensing spoons and information leaflets.

Primary packs

The wide range of pharmaceutical products, such as solid powders, granules, tablets, capsules, semi-solids (e.g. creams, ointments, gels), liquids (such as solutions, suspensions, emulsions), some of which are sterile, obviously require a great diversity, both in primary pack design and in packaging materials. The latter include paper, glass, plastics, rubber, metal or combination materials such as laminates. Examples of primary packs include blister packs, strip packs, sachets, bottles, ampoules, vials, bags, tubes and syringes. The primary pack may contain many doses (i.e. be a multiple-unit pack, e.g. a bottle containing many tablets) or a single dose (i.e. be a single-unit pack, e.g. blister pack, sachet). Examples of the range of pharmaceutical primary packs are shown in Figure 47.1.

The primary pack must offer child-resistance to restrict children's access to the product. Child-resistant packs have been successful in reducing accidental poisoning of children. At the same time, the pack must allow access to the user, who may be elderly or frail and may have difficulty opening packs. Difficult-to-open packs are not always fully reclosed between administration events – and this may compromise the product. In addition, the primary pack must be tamper-resistant and tamper-evident to